The Central Region

Illinois, Indiana, Kentucky, Michigan, Ohio, West Virginia, Wisconsin

Coal Country

At 120 billion tons, the Central region holds about one-quarter of the nation's coal reserves, second only to the Mountain region. The region ranks first in the nation in coal production and exportation. In 1995, these states accounted for 80 percent of the nation's coal exports. With Kentucky and West Virginia leading the way, the region produced 42 percent of the nation's coal.

It's not surprising that the Central region has taken advantage of this indigenous resource for its own electricity production. The region relies on coal-fired plants for more than two-thirds of its generating capacity and three-fourths of its electricity. The region's reliance on coal has come at an environmental cost. The region's power plants produce more sulfur dioxide per kilowatt-hour of electricity generated than those in any other region. Kentucky and West Virginia are among the top 10 states for emissions of carbon dioxide, nitrogen oxides, sulfur dioxides, and particulates from utility power plants.

Renewables Beginning to be Tapped

Because of growing environmental concerns, state policies and governmental programs are now promoting the increased use of renewable energy to meet the Central region's expanding energy needs. Utility regulators and legislators have recognized that, by exploiting its abundant biomass and wind resources, the Central region can address its environmental concerns, build a more diverse energy portfolio, and create a catalyst for economic development.

For example, Illinois' Biomass Energy Program is investigating the development of biomass resources such as wood, wood waste, crop residues, and new energy crops such as switchgrass.

In Indiana, legislation is guiding the increased development of biomass energy. Waste-to-energy systems, which must meet federal Clean Air Act standards, are reducing waste disposal problems while mitigating environmental concerns. In Michigan, biomass provides more than 1 percent of the state's electricity needs, mostly from wood, and its contribution is expected to grow.

Biomass is not the only renewable energy resource in the Central region. Many states, such as Michigan, are also investing in photovoltaics and wind technologies. For example, Detroit Edison is promoting photovoltaics through a green pricing program to sell about 55 kilowatts of capacity in 100-watt power units. The program is currently oversubscribed, with subscribers committing to purchase between 200 and 700.

Traverse City Power & Light in Michigan has had similar success with a green pricing program to develop wind power. Wind power is expected to gain in importance in the Central region, because the region has a wind power potential estimated at 21,000 megawatts.

Wisconsin law requires that utilities in the eastern portion of the state add 50 megawatts of renewables by 2000. It further states that energy efficiency and conservation are the preferred approaches for meeting future state energy needs, and if new electrical generation is needed, renewable resources are the preferred generation source. Wisconsin already supplies more than 5 percent of its electricity needs with renewable energy, and that percentage could grow. Wisconsin utilities currently plan to install 22 megawatts of wind power by the year 2000.

Renewable Pathways

Detroit Edison Company

Detroit Edison has installed 54.8 kilowatts of grid-connected photovoltaics and plans to install another 135 kilowatts of photovoltaic power.

Some of the region's aging coal-fired plants will soon face retirement or possibly repowering decisions. Although some of this capacity will be replaced with fossil fuel, the new capacity needs may also be met with renewable power generation. One driver for renewable generation will be customer choice, which allows power users to select their own electric supplier.

The region has significant

renewable resources that can be tapped to diversify the energy mix and provide environmental and economic benefits. Only a small amount of the region's electricity now comes from renewable resources, yet the region is high in biomass resources including mill residues, construction waste, and woody municipal waste such as tree trimmings.

An Aging Power Supply System

Although the Central region's generation and energy mix result in electricity prices slightly lower than average, that low cost is due in part to a reliance on older power plants. Coal currently provides 60 percent of the region's electricity capacity and nearly two-thirds of its electrical energy, but one out of every seven of the region's coal-fired plants is more than 40 years old. Decisions will soon be required on whether to extend the life of these plants, which would require new capital investments, or to retire them, which would create a need for significant new replacement capacity.

A similar situation exists for nuclear power, which supplies 20 percent of the region's capacity and nearly 30 percent of its electricity. Almost one-third of the region's 21 nuclear reactors are more than 20 years old. The steam generators in several of these plants will need to be replaced within the next 7 years at a significant capital cost. Some aging plants are showing further signs of deterioration and are facing decommissioning well before the 40 years for which they were licensed to operate. If this happens, new capital investment in generating capacity will be needed to replace them.

Although the Central region faces many challenges, the retirement of aging coal and nuclear power plants presents an opportunity for the region to use renewables to a greater extent. This switch to renewables would help to reduce both the level of fossil-fuel imports and the environmental effects of power production.

Biomass is used primarily by industrial and commercial businesses to generate electricity and steam, reducing their use of fossil fuels while eliminating their wood wastes. More than 7 million tons of fuel wood and black liquor (paper processing waste) are consumed each year in Kentucky and West Virginia, resulting in more than 4,100 jobs and $100 million in annual income.

The potential for increasing hydropower use does not necessarily mean building large dams—many small hydropower projects use diversion canals or rely on existing impoundments to generate hydropower without significantly impacting the river's ecosystem. Several hydropower developers have refurbished existing dams and powerhouses in the region.

Customer Choice Supports Wind

Traverse City Light and Power, a municipal utility in Michigan, did not need new capacity but it did want to harness wind power to diversify its resource base.

Under a green pricing program, the utility solicited customers who were willing to pay an increase of 1.58 cents per kilowatt-hour to obtain all of their needs from renewable energy. The utility found more than enough subscribers to install a 600-kilowatt wind turbine. It also found that interest in the project went beyond the subscribing customers to the community, the city council, and the Michigan Public Service Commission, which provided a $50,000 grant to the project.

For their commitment to pay extra for wind energy, the customers get more than just a good feeling about helping the environment. They also get a guarantee that their rates will not increase if fossil fuel prices increase or if environmental standards become more stringent. Customers who participate are proud to display a special window sticker that recognizes their commitment to a brighter energy future. There are 26 small businesses participating in the program who have committed to purchase all of their electricity from this clean power source for 10 years.

As described in a recent report prepared for the Renewable Energy Policy Project on Traverse City's green power program, "because business customers—individually and as a class—use more energy than residential customers, even relatively few participants can have a large impact on renewables development."